IMPORTANT ROCK CHARACTERISTICS

Directions: The rock in which the repository is built must be appropriate for a repository. Some basic properties of rocks important for consideration in determining the appropriateness of the tuff at Yucca Mountain are listed below. On the blank before the property, write the letter of the definition that best decribes the property. Then explain why each characteristic is important to consider when planning the repository.

___ 1. Plasticity _____

_____

___ 2. Solubility _____

_____

___ 3. Sorptive capacity _____

_____

___ 4. Compressive strength _____

_____

___ 5. Thermal stability against chemical decomposition _____

_____

___ 6. Permeability _____

_____

___ 7. Porosity _____

_____

___ 8. Heat conductivity _____

_____

_____

DEFINITIONS

A - the ability to transmit heat
B - the extent to which a rock can adsorb or absorb from solution
C - the degree of resistance to heat causing a chemical change
D - the ability of a solid to flow, especially under influence of pressure and/or temperature
E - the percentage of the total volume of pores or spaces in a rock or soil to its total volume
F - the extent to which a material can be squeezed without breaking or fracturing
G - the capacity of a medium (rock, sediment, or soil) to transmit fluid (gas, liquid such as ground water); depends on the size and shape of the pores in the medium and how they are interconnected
H - susceptibility to being dissolved; tendency to dissolve

ROCK CHARACTERISTICS IMPORTANT IN REPOSITORY SITING

Directions: Use what you have learned in your reading lesson to answer the following questions.

True or False: If the answer is false, correct it to make it true.

_____ 1. Waste solutions will almost always begin to dissolve the rock through which they pass.

_____ 2. All rocks are porous and permeable.

_____ 3. Non-welded tuff is stronger and denser than welded tuff.

Matching:

_____ 4. A measure of how well any material will transmit heat.

_____ 5. A measure of the deforming effect of heat on any material.

_____ 6. A measure of the transforming effect of heat on any material.

a. *plasticity* b. *thermal stability* c. *thermal conductivity* *d. porosity*

Completion:

7. Waste can flow from one location to another in what two forms?

_____ and _____

8. Why would the compressive strength of rocks be a consideration in selecting a site for a nuclear waste repository?

_____

_____

9. Describe an example of a chemical sorptive process.

_____

_____

10. Describe an example of a physical sorptive process.

_____

_____

11. Describe the process by which welded tuff is formed.

_____

_____

12. Compare porosity and permeability.

_____

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